

BIOGRAPHICAL SKETCH

NAME David M. Reif		POSITION TITLE Biologist	
eRA COMMONS USER NAME			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Vanderbilt University (Nashville, TN)	Ph.D.	2006	Human Genetics
Vanderbilt University (Nashville, TN)	M.S.	2005	Applied Statistics
College of William and Mary (Williamsburg, VA)	B.S.	2002	Biology

A. POSITIONS and HONORS**Research and Professional Experience:**

2008 Visiting Scholar, Department of Statistics,
North Carolina State University, Raleigh, NC

2006-Present Biologist, National Center for Computational Toxicology,
U.S. Environmental Protection Agency, Research Triangle Park, NC

2002-2006 Graduate Research Assistant, Center for Human Genetics Research,
Vanderbilt University, Nashville, TN
(Advisors: Jason Moore and Jonathan Haines)

1999-2001 Research Assistant, Department of Biology,
College of William and Mary, Williamsburg, VA
(Advisor: Patty Zwollo)

Professional Societies and Affiliations:

2007-present International Society of Exposure Analysis (**ISEA**)

2006-present American Association of Immunologists (**AAI**)

2005-present International Society of Computational Biology (**ISCB**)

2005-present Institute of Electrical and Electronic Engineers (**IEEE**)

2004-present American Society of Human Genetics (**ASHG**)

2004-present International Genetic Epidemiology Society (**IGES**)

2003-present American Statistical Association (**ASA**)

2003-present International Society for Genetic and Evolutionary Computation (**ISGEC**)

Honors and Awards:

2007 OTS Award,
Human Studies Division, National Exposure Research Laboratory,
U.S. Environmental Protection Agency, Research Triangle Park, NC

2005 International Travel Grant,
Vanderbilt University, Nashville, TN

2003-2005 NIH Training Grant in Human Genetics,
Vanderbilt University, Nashville, TN

2002 Phi Sigma Biology Honors Fraternity,
College of William and Mary, Williamsburg, VA

2001 Omicron Delta Kappa Leadership Fraternity,
College of William and Mary, Williamsburg, VA

2001 Monroe Scholarship Supplemental Award for International Research,
College of William and Mary, Williamsburg, VA

- 2000-2001 Howard Hughes Medical Institute Undergraduate Research Grant,
College of William and Mary, Williamsburg, VA
- 1998-2002 Monroe Scholar Honors Program,
College of William and Mary, Williamsburg, VA
- 1998-2002 Commonwealth One Scholarship,
College of William and Mary, Williamsburg, VA
- 1998 Daily News-Record Leadership Award,
College of William and Mary, Williamsburg, VA

Selected Expert Committees/Advisory Panels/Organizing Committees:

- 2007 Session chair of "Statistical and Mathematical Modeling for Community-based Risk Assessment", *Community Based Risk Assessment Workshop*,
National Center for Environmental Research, Durham, NC.
- 2007 Created publicity materials on "Toxicogenomics and Chemical Genomics" and "ToxCast",
International Science Forum on Computational Toxicology, Research Triangle Park, NC.
- 2006-present EPA Speaker's Bureau
- 2006-present Reviewer for:
Pharmacogenomics
BMC Bioinformatics
Human Genetics
Journal of Exposure Science and Environmental Epidemiology
Journal of Infectious Disease
Biotechniques
Medical Science Monitor

Teaching Experience:

- 2008 Course Director, *Introduction to R*,
North Carolina State University, Raleigh, NC, USA [semester course].
- 2007 Presented "Genotyping technology and analysis in cancer research",
Association for Biomedical Research, Chapel Hill, NC, USA [lecture].
- 2006 Teaching Assistant & Guest Lecturer, *Statistics for Biomedical Researchers*,
Vanderbilt University, Nashville, TN, USA [semester course].
- 2006 Guest Lecturer, *General Biology I & II*,
Nashville State Technical College, Nashville, TN, USA [semester course].

B. SELECTED PUBLICATIONS

- Motsinger A.A., Reif D.M. **Embracing Complexity: Gene-gene and Gene-Environment Interactions.** In:
Genes, Genomes, and Genomics, vol. 3, in press. 2007
- Motsinger A.A., Ritchie M.D., Reif D.M. **Novel Methods for Detecting Epistasis in Pharmacogenomics Studies.** *Pharmacogenomics*, 8(9). 2007
- McKinney B.A., Reif D.M., White B.C., Crowe J.C., Moore J.H. **Evaporative cooling feature selection for genotypic data involving interactions.** *Bioinformatics*, 23(16). 2007
- Reif D.M., Israel M.A., Moore J.H. **Exploratory visual analysis of statistical results of microarray experiments comparing high and low grade glioma.** *Cancer Informatics*, 2(1). 2007
- Motsinger A.A., Reif D.M., Fanelli T.J., Davis A.C., Ritchie M.D. **Linkage disequilibrium in genetic association studies improves the power of Grammatical Evolution Neural Networks.** *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology*. 2007
- McKinney B.A., Reif D.M., Moore J.H., Crowe Jr. J.E. **Cytokine Expression Patterns Associated with Systemic Adverse Events Following Smallpox Immunization.** *Journal of Infectious Disease*, 194(4). 2006
- Reif D.M., Motsinger A.A., McKinney B.A., Crowe Jr. J.E., Moore J.H. **Feature Selection using Random Forests for the Integrated Analysis of Multiple Data Types.** *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology*. 2006

- McKinney B.A., Reif D.M., Ritchie M.D., Moore J.H. **Machine learning for detecting gene-gene interactions.** *Applied Bioinformatics*, 5(2). 2006
- Motsinger A.A., Reif D.M., Dudek S.M., Ritchie M.D. **Understanding the Evolutionary Process of Grammatical Evolution Neural Networks for Feature Selection in Genetic Epidemiology.** *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology*. 2006
- Reif D.M., Moore J.H. **Visual analysis of statistical results from microarray studies of human cancer.** *Oncology Reports*, 15(5). [Cover Article]. 2006
- Wilke R., Reif D.M., Moore J.H. **Combinatorial Pharmacogenetics.** *Nature Reviews Drug Discovery*, 4(11). 2005
- White B.C., Gilbert J., Reif D.M., Moore J.H. **A statistical comparison of grammatical evolution strategies in the domain of human genetics.** *IEEE Congress on Evolutionary Computation*, 6(2). 2005
- Reif D.M., Dudek S.M., Shaffer C.M., Wang J., Moore J.H. **Exploratory Visual Analysis of Pharmacogenomic Results.** *Biocomputing*, 9th ed. 2005
- Reif D.M., White B.C., Moore J.H. **Integrated Analysis of Genetic, Genomic, and Proteomic Data.** *Expert Reviews in Proteomics*, 1 (1). 2004
- Reif D.M., White B.C., Olsen N.J., Aune T.A., Moore J.H. **Complex function sets improve symbolic discriminant analysis of microarray data.** In: Cantu-Paz, E. *et al.* (eds.) *Lecture Notes in Computer Science*, 2724. 2003

Submitted & In Preparation:

- Reif D.M., McKinney B.A., Motsinger A.A., Chanock S.J., Rock M.T., Moore J.H., Crowe Jr. J.E. **Genetic Basis for Systemic Adverse Events Following Smallpox Vaccination.** Submitted. 2007
- Reif D.M., Motsinger A.A., McKinney B.A., Edwards K.M., Chanock S.J., Rock M.T., Crowe Jr. J.E., Moore J.H. **Integrated Analysis of Genetic and Proteomic Data Identifies Biomarkers Associated with Systemic Adverse Events Following Smallpox Vaccination.** Submitted. 2007
- Motsinger A.A., Reif D.M., Fanelli T.J., Ritchie M.D. **A Comparison of Analytical Methods for Genetic Association Studies.** Submitted. 2007
- Sanchez Y., Deener K., Cohen-Hubal E., Reif D.M., Segal D.A. **Research Needs for Community Based Risk Assessment.** In Preparation. 2008
- Heidenfelder B.L., Reif D.M., Cohen-Hubal E., Harkema J.R., Gallagher J.E., Edwards S.A. **Comparative microarray analysis of rats exposed to ovalbumin and/or concentrated airborne particulates.** In Preparation. 2008

C. SELECTED PRESENTATIONS

- "Detection and characterization of gene-gene and gene-environment interactions in common human diseases and complex clinical endpoints", **Therapeutic Applications of Computational Biology and Chemistry**, Wellcome Trust Conference Centre, Cambridge, UK [invited seminar]. 2007
- "R and Bioconductor: Intermediate-Level Topics", **Data Analysis Working Group**, National Health and Environmental Effects Research Laboratory, Research Triangle Park, NC, USA [seminar]. 2007
- "Genetic factors associated with adverse events following smallpox vaccination", **Vanderbilt University Genetics Retreat**, The Hermitage, TN, USA [oral presentation]. 2006
- "Strategies for the integration of multiple data types in analysis of complex clinical outcomes", **Special Seminar**, U.S. Environmental Protection Agency, Research Triangle Park, NC, USA [seminar]. 2006
- "Integrated analysis of genetic and proteomic data", **Vanderbilt University Genetics Interest Group**, Nashville, TN, USA [seminar]. 2006
- "Exploratory Visual Analysis", **Pacific Symposium on Biocomputing**, Lihue, HI, USA [oral presentation]. 2005
- "Symbolic Discriminant Analysis of microarray data using complex function sets", **Genetic and Evolutionary Computation Conference**, Chicago, IL, USA [oral presentation]. 2003